This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1 – 4 (CANCELLED)

5. (ORIGINAL) An integrated solid state laser and slider apparatus comprising a single, monolithic semiconductor substrate, said monolithic semiconductor substrate including a slider portion having an air bearing surface layer deposited thereon, said semiconductor substrate including at least one laser portion having an emission face, said emission face substantially coplanar with said air bearing surface layer.

6. (WITHDRAWN) An optical head apparatus comprising:

(a) a monolithic semiconductor substrate;

(b) at least one semiconductor laser, said semiconductor laser integral with said monolithic semiconductor substrate; and

(c) a semiconductor slider, said semiconductor slider integral with said monolithic substrate, said slider including an air bearing surface.

7. (WITHDRAWN) The optical head apparatus of claim 6, wherein said monolithic semiconductor substrate comprises:

(a) a first conductivity-type base layer;

(b) a first conductivity-type clad layer adjacent said first conductivity-type semiconductor layer;

(c) an active region layer adjacent said first conductivity-type clad layer;

(d) a second conductivity-type clad layer adjacent said active region layer; and

(e) an insulating layer adjacent said second conductivity-type clad layer.

8. (WITHDRAWN) The optical head apparatus of claim 7, further comprising a metal layer adjacent said insulating layer.

9. (WITHDRAWN) The optical head apparatus of claim 7, further comprising:

(a) a first side electrical contact associated with said first conductivity-type clad layer on a first side of said semiconductor substrate;

(b) a second side electrical contact associated with said second conductivity-type clad layer on an second side of said semiconductor substrate; and

(c) said first side electrical contact and said second side electrical contact defining a diode.

10. (WITHDRAWN) The optical head apparatus of claim 6, wherein said air bearing surface comprises a protective layer.

11. (WITHDRAWN) The optical head apparatus of claim 10, wherein said protective layer comprises a material selected from the group consisting of metal nitride, metal carbide, metal, metal alloy, Group III nitride, Group IV nitride, Group III carbide, Group IV carbide, diamond, diamond-like carbon, hydrogenated carbon, fluoride, and fluoropolymer.

12. (WITHDRAWN) The optical head apparatus of claim 7, wherein:

(a) said first conductivity-type clad layer comprises a first conductivity-type distributed Bragg reflector mirror stack;

(b) said active region layer comprises a plurality of quantum well and quantum barrier structures; and

(c) said second conductivity-type clad layer comprises a second conductivity-type distributed Bragg reflector mirror stack.

13. (WITHDRAWN) The optical head apparatus of claim 9, wherein said first side electrical contact and said second side electrical contact are electrically accessible

from a portion of said semiconductor substrate which is remote from said air bearing surface.

14. (WITHDRAWN) The optical head apparatus of claim 9, wherein said first side electrical contact and said second side electrical contact are electrically accessible from said first side of said semiconductor substrate, said first side being substantially opposite said air bearing surface.

15. (WITHDRAWN) The optical head apparatus of claim 9, wherein said first side electrical contact is electrically accessible from a side of said semiconductor substrate which is opposite said air bearing surface, and said second side electrical contact is electrically accessible from a side of said semiconductor substrate which is substantially normal to said air bearing surface.

16. (WITHDRAWN) The optical head apparatus of claim 9, wherein said second side electrical contact further comprises a conductive via, said conductive via extending through said first conductivity-type base layer, said first conductivity-type clad layer, said active region layer and said second conductivity-type clad layer, said via communicating with said first side of said semiconductor substrate.

17. (WITHDRAWN) The optical head apparatus of claim 6, wherein said laser includes an emission facet having an aperture therein.

18. (WITHDRAWN) The optical head apparatus of claim 17, wherein said semiconductor laser has an output wavelength λ, and said aperture has a width w such that $w < \lambda$.

19. (WITHDRAWN) The optical head apparatus of claim 18, wherein $w < \lambda/2$.

20. (WITHDRAWN) The optical head apparatus of claim 19, wherein at least 50% of output power from said emission facet is directed through said aperture.

21. (WITHDRAWN) The optical head apparatus of claim 7, wherein said semiconductor laser is a vertical cavity surface emitting laser.

22. (ORIGINAL) A near-field optical apparatus comprising a monolithic semiconductor substrate, said semiconductor substrate including at least one laser region, said semiconductor substrate including a slider region, said laser region integral to said slider region, said integral laser region and slider region defining a monolithic optical head, wherein the slider region is carried out by depositing an air bearing surface layer on a portion of said semiconductor substrate.

23. (ORIGINAL) The near-field optical apparatus of claim 22, wherein said monolithic semiconductor substrate further comprises:

(a) a first conductivity-type semiconductor layer adjacent a first side of said semiconductor substrate;

(b) an first conductivity-type distributed Bragg reflector mirror stack adjacent said first conductivity-type semiconductor layer;

(c) a multiple quantum well active region layer adjacent said first conductivity-type distributed Bragg reflector mirror stack;

(d) a second conductivity-type distributed Bragg reflector mirror stack adjacent said multiple quantum well active region layer;

(e) an insulating layer adjacent said second conductivity-type distributed Bragg reflector mirror stack; and

(f) a metal layer adjacent said insulating layer.

24. (ORIGINAL) The near-field optical apparatus of claim 23, wherein said optical head further comprising:

(a) a second side electrical contact positioned adjacent said second conductivity-type distributed Bragg reflector mirror stack on a second side of said semiconductor substrate;

(b) an first side electrical contact positioned adjacent said first conductivity-type semiconductor layer on a first side of said semiconductor substrate;

(c) said second side electrical contact and said first side electrical contact defining a laser mode for said semiconductor laser.

25. (PREVIOUSLY PRESENTED) The near-field optical apparatus of claim 22, wherein said slider region includes an air bearing surface.

26. (ORIGINAL) The near-field optical apparatus of claim 25, wherein said air bearing surface comprising a protective layer of material.

27. (ORIGINAL) The near-field optical apparatus of claim 26, wherein said protective layer comprises a material selected from the group consisting of metal nitride, metal carbide, metal, metal alloy, Group III nitride, Group VI nitride, Group III carbide, Group IV carbide, diamond, diamond-like carbon, hydrogenated carbon, fluoride, and fluoropolymer.

28. (PREVIOUSLY PRESENTED) The near-field optical apparatus of claim 24, wherein said second side electrical contact and said first side electrical contact are electrically accessible from a side of said optical head apparatus which is remote from said air bearing surface.

29. (ORIGINAL) The near-field optical apparatus of claim 24, wherein said second side electrical contact and said first side electrical contact are electrically accessible from said first side of said semiconductor substrate.

30. (ORIGINAL) The near-field optical apparatus of claim 24, wherein said first side electrical contact is electrically accessible from said first side of said semiconductor substrate, and said second side electrical contact is electrically accessible from a side of said semiconductor substrate which is substantially normal to said first side of said semiconductor substrate.

31. (ORIGINAL) The near-field optical apparatus of claim 24, wherein said second side electrical contact further comprises a conductive via, said conductive via extending through said first conductivity-type semiconductor layer, said first conductivity-type distributed Bragg reflector mirror stack, said multiple quantum well active region layer, and said second conductivity-type distributed Bragg reflector mirror stack, said via communicating with said first side of said semiconductor substrate.

32. (ORIGINAL) The near-field optical apparatus of claim 22, wherein said laser includes an emission facet having an aperture therein.

33. (ORIGINAL) The near-field optical apparatus of claim 32, wherein said semiconductor laser has an output wavelength λ, and said aperture has a width w such that $w < \lambda$.

34. (ORIGINAL) The near-field optical system of claim 33, wherein $w < \lambda/2$.

35. (ORIGINAL) The near-field optical apparatus of claim 34, wherein at least 50% of output power from said emission facet is directed through said aperture.

36. (New) The apparatus of claim 5 wherein said air bearing surface layer comprises a protective layer.

37. (New) The apparatus of claim 36 wherein said protective layer comprises a material selected from the group consisting of metal nitride, metal carbide, metal, metal alloy, Group III nitride, Group IV nitride, Group III carbide, Group IV carbide, diamond, diamond-like carbon, hydrogenated carbon, fluoride, and fluoropolymer.

38. (New) The apparatus of claim 5 wherein said emission facet has an aperture.

39. (New) The apparatus of claim 37, wherein said laser has an output wavelength λ, and said aperture has a width w such that $w < \lambda$.

40. (New) The apparatus of claim 38, wherein $w < \lambda/2$.

41. (New) The apparatus of claim 39, wherein at least 50% of output power from said emission facet is directed through said aperture.